

High Risk Stream Crossings in Heath, MA:

A Resource for Assessing Risk and Improving Resiliency

Franklin Regional Council of Governments

September 2018

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Table of Contents

Introduction and Project Background

This report provides a summary of the road-stream crossings (culverts and bridges) in the Town of Heath that are considered to be at high risk of failure from heavy precipitation events. The purpose of this project is to help municipal officials and public works staff prioritize bridge and culvert upgrades in their towns. This report also provides information on how to make road-stream upgrades more resilient to current and projected precipitation conditions. Roads, bridges, and culverts in the Deerfield River Watershed are particularly vulnerable to flooding, as Tropical Storm Irene demonstrated in 2011. Events like Tropical Storm Irene are projected to become more frequent due to climate change. Upgrading and replacing culverts and bridges with structures that can withstand higher flows will save money over the long term, help protect critical infrastructure, and improve aquatic habitat in the watershed.

The information in this report comes from a pilot project completed by the Massachusetts Department of Transportation (MassDOT) and the University of Massachusetts, Amherst (UMass). The intent of the project was to develop a methodology for determining the vulnerability of inland transportation networks to climate change, and specifically, to extreme precipitation events. The analysis identified and mapped road-stream crossings in each town within the Deerfield River Watershed. Over 900 crossings were evaluated through field work completed by Trout Unlimited. The analysis looked at five factors (Figure 1) when considering vulnerability of a crossing. An interactive online tool, SHEDS: Stream Crossing Explorer,[1] was created showing the results of the evaluations, and is described in more detail on pages 15 to 20.

FIGURE 1

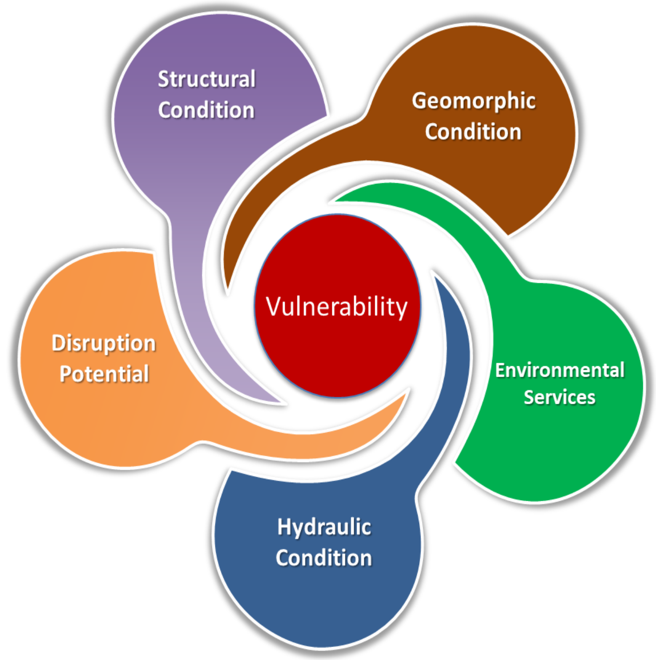


Figure 1: *The MassDOT project considered five factors when determining overall vulnerability of a crossing: structural condition; geomorphic condition; hydraulic condition; disruption of emergency response; and the potential to improve aquatic organism passage. Image source: UMass Amherst*

[1] http://sce.ecosheds.org/

Definitions

For the purpose of this report, the crossings identified as having a high Overall Risk of Failure in the SHEDS tool have been included. These crossings are vulnerable due to one or more of the following factors:

- **Structural Condition** – Risk of failure is based on the structural condition of the crossing. Data comes from MassDOT bridge inspection reports or culvert condition assessments conducted in the field by Trout Unlimited or UMass Amherst students.
- **Hydraulic Risk** – Risk of failure is based on how much water a crossing can handle before collapsing, overtopping, or washing out. Hydraulic Risk was determined through models of current and future stream flows for different storm events.
- **Geomorphic Risk** – Risk of failure is based on the likelihood of sediment plugging, woody debris, and channel adjustment at the crossing structure. A geomorphic scoring index was used to assess each crossing for structural alignment, structure width versus stream channel width, stream power versus substrate type, evidence of deposition or erosion, condition of the structure's footings, existence of a scour pool, and existing blockage.

Massachusetts Stream Crossing Standards

The Massachusetts Stream Crossing Standards[2] apply to all new permanent crossings, and to replacement crossings to the extent feasible. The standards were created to protect and improve stream health by designing culverts and bridges to accommodate fish and wildlife passage. Common problems for fish and wildlife passage at crossings (Figure 2) also tend to place these crossings at a higher risk for failure during a flood event. While the standards focus on improving river and stream ecosystems, designing crossings with rivers in mind also makes those structures more resilient to flooding, allowing for larger volumes of water and debris to safely pass through.

The Stream Crossing Standards establish minimum criteria necessary for fish and wildlife movement and to maintain stream continuity (Figure 3). Further engineering is required to determine appropriate size and design to provide adequate flood capacity and stability. The Massachusetts Department of Transportation (MassDOT) updated its *Design of Bridges and Culverts for Wildlife*

[2] https://www.mass.gov/files/documents/2018/08/23/Stream%20Crossings%20booklet%20Web.pdf

Passages at Freshwater Streams[3] to incorporate the most recent Stream Crossing Standards and to provide design templates and guidance for municipal officials. The new guidance document is expected to be available in January 2019.

High Risk Crossing Tables

The following tables display the high risk road-stream crossings in Heath. Each crossing has a Map ID that corresponds to a number on the High Risk Crossing Map. The Crossing ID for each entry was used to download data from two sources: the SHEDS Stream Crossing Explorer tool (data source for Overall Risk of Failure assessment), and the North Atlantic Aquatic Connectivity Collaborative (NAACC, data source for photos and Aquatic Passability assessment). The Crossing ID can be used to look-up crossings in either of these data sources (see the Instructions for Using Stream Crossing Data Tools).

FIGURE 2

STREAM CROSSING PROBLEMS

UNDERSIZED CROSSINGS

Undersized crossings restrict natural stream flow, particularly during high flows, causing several problems, including scouring and erosion, high flow velocity, clogging, ponding, and in some cases, washouts. Crossings should be large enough to pass fish, wildlife, and high flows.

SHALLOW CROSSINGS

Shallow crossings have water depths too low for many organisms to move through them and may lack appropriate bed material. Crossings should have an open bottom or should be buried into the streambed to allow for substrate and water depths that are similar to the surrounding stream.

PERCHED CROSSINGS

Perched crossings are above the level of the stream bottom at the downstream end. Perching can result from either improper installation or from years of downstream bed erosion. Crossings should be open-bottomed or sunk in the bed to prevent perching.

Figure 2*: Common stream crossing problems for wildlife also tend to make crossings more vulnerable to failure during a flood event. Source:* Massachusetts Stream Crossings Handbook*, MA Division of Ecological Restoration, June 2012.*

[3] https://roadecology.ucdavis.edu/files/content/projects/MA_DOT_Design_Bridges_Culverts_Wildlife_Passage_122710.pdf

FIGURE 3

***Figure 3**: Good stream crossing design for wildlife also helps pass higher volumes of water and debris, making structures more resilient to heavy precipitation events. Source:* Massachusetts Stream Crossings Handbook, *MA Division of Ecological Restoration, June 2012.*

HEATH

Map ID	141
Road / Surface	Rowe Rd / Unpaved
Stream	Mill Brook
Crossing Type	Single Culvert
Jurisdiction	Local
Overall Risk of Failure	**High**
Structural Risk	
Geomorphic Risk	✓
Hydraulic Risk	✓
Aquatic Passability	Significant Barrier
Observation Date	9/17/2014
GPS Coordinates	Latitude: 42.691803 Longitude: -72.848037
Crossing ID	xy4269180372848037

Map ID	142
Road / Surface	Jacksonville Stage Rd / Paved
Stream	Mill Brook
Crossing Type	Multiple Culvert
Jurisdiction	Local
Overall Risk of Failure	**High**
Structural Risk	✓
Geomorphic Risk	✓
Hydraulic Risk	✓
Aquatic Passability	Significant Barrier
Observation Date	9/17/2014
GPS Coordinates	Latitude: 42.682997 Longitude: -72.845358
Crossing ID	xy4268299772845358

HEATH

Map ID	143	
Road / Surface	Judd Rd / Unpaved	
Stream	Trib Mill Brook	
Crossing Type	Single Culvert	
Jurisdiction	Local	
Overall Risk of Failure	**High**	
Structural Risk	✓	
Geomorphic Risk	✓	
Hydraulic Risk		
Aquatic Passability	Significant Barrier	
Observation Date	9/19/2014	
GPS Coordinates	Latitude: 42.671041 Longitude: -72.848906	
Crossing ID	xy4267104172848906	

Map ID	144	
Road / Surface	Jacksonville Stage Rd / Paved	
Stream	West Branch Brook	
Crossing Type	Bridge	
Jurisdiction	Local	
Overall Risk of Failure	**High**	
Structural Risk		
Geomorphic Risk		
Hydraulic Risk	✓	
Aquatic Passability	Insignificant Barrier	
Observation Date	9/16/2014	
GPS Coordinates	Latitude: 42.704797 Longitude: -72.835453	
Crossing ID	xy4270479772835453	

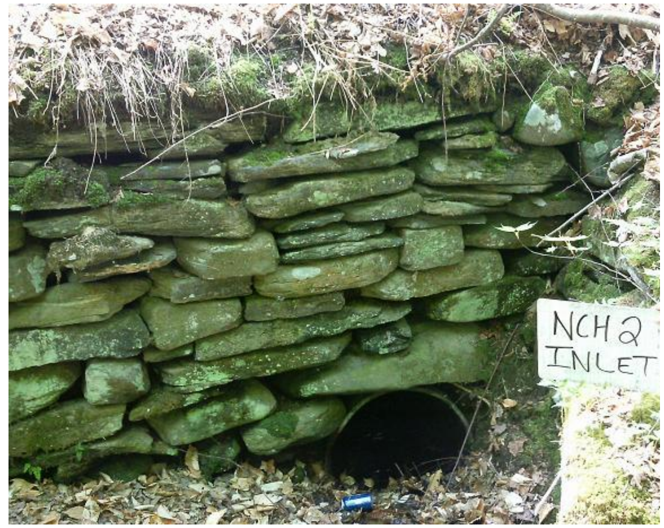
HEATH

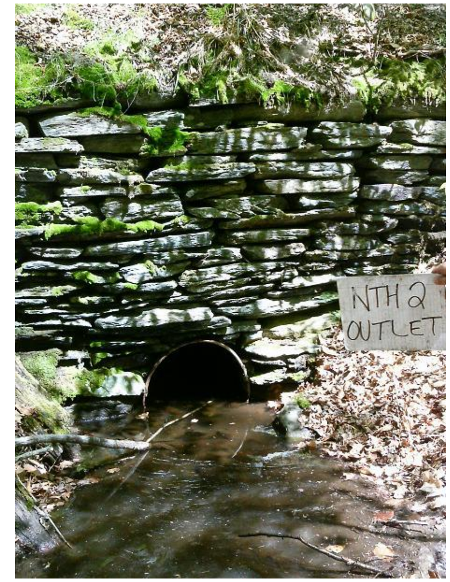
Map ID	145
Road / Surface	Brunelle Rd Ext / Unpaved
Stream	Burrington Brook
Crossing Type	Multiple Culvert
Jurisdiction	Local
Overall Risk of Failure	**High**
Structural Risk	
Geomorphic Risk	✓
Hydraulic Risk	✓
Aquatic Passability	Moderate Barrier
Observation Date	9/17/2014
GPS Coordinates	Latitude: 42.721951 Longitude: -72.819287
Crossing ID	xy4272195172819287

Map ID	146
Road / Surface	State Farm Rd / Unpaved
Stream	Sanders Brook
Crossing Type	Single Culvert
Jurisdiction	Local
Overall Risk of Failure	**High**
Structural Risk	
Geomorphic Risk	✓
Hydraulic Risk	✓
Aquatic Passability	Moderate Barrier
Observation Date	9/16/2014
GPS Coordinates	Latitude: 42.730462 Longitude: -72.808376
Crossing ID	xy4273046272808376

HEATH

Map ID	147
Road / Surface	State Farm Rd / Unpaved
Stream	Trib Sanders Brook
Crossing Type	Single Culvert
Jurisdiction	Local
Overall Risk of Failure	**High**
Structural Risk	
Geomorphic Risk	✓
Hydraulic Risk	
Aquatic Passability	Moderate Barrier
Observation Date	5/11/2015
GPS Coordinates	Latitude: 42.727000 Longitude: -72.796871
Crossing ID	xy4272700072796871





Map ID	148
Road / Surface	Sanders Brook Rd / Unpaved
Stream	Trib Sanders Brook
Crossing Type	Single Culvert
Jurisdiction	State Forest
Overall Risk of Failure	**High**
Structural Risk	
Geomorphic Risk	✓
Hydraulic Risk	✓
Aquatic Passability	Significant Barrier
Observation Date	9/16/2014
GPS Coordinates	Latitude: 42.723977 Longitude: -72.796118
Crossing ID	xy4272397772796118

HEATH

Map ID	149
Road / Surface	Swamp Rd / Unpaved
Stream	Davenport Brook
Crossing Type	Single Culvert
Jurisdiction	Local
Overall Risk of Failure	**High**
Structural Risk	✓
Geomorphic Risk	✓
Hydraulic Risk	✓
Aquatic Passability	Severe Barrier
Observation Date	9/22/2014
GPS Coordinates	Latitude: 42.677597 Longitude: -72.800118
Crossing ID	xy4267759772800118

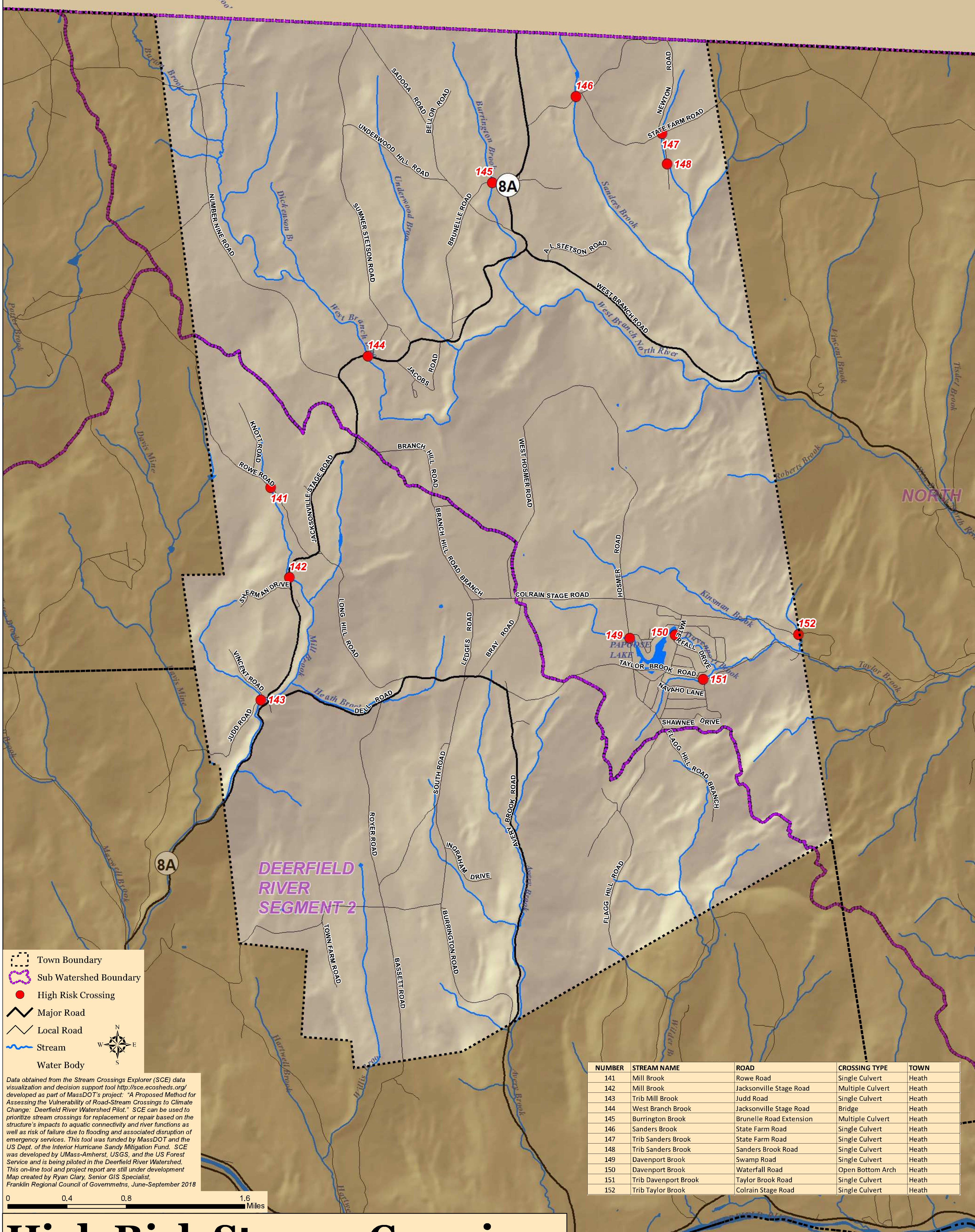
Map ID	150
Road / Surface	Waterfall Rd / Unpaved
Stream	Davenport Brook
Crossing Type	Open Bottom Arch
Jurisdiction	Unknown
Overall Risk of Failure	**High**
Structural Risk	✓
Geomorphic Risk	✓
Hydraulic Risk	
Aquatic Passability	Minor Barrier
Observation Date	9/22/2014
GPS Coordinates	Latitude: 42.677965 Longitude: -72.794117
Crossing ID	xy4267796572794117

HEATH

Map ID	151	 
Road / Surface	Taylor Brook Rd / Unpaved	
Stream	Trib Davenport Brook	
Crossing Type	Single Culvert	
Jurisdiction	Local	
Overall Risk of Failure	**High**	
Structural Risk	✓	
Geomorphic Risk	✓	
Hydraulic Risk		
Aquatic Passability	Significant Barrier	
Observation Date	9/22/2014	
GPS Coordinates	Latitude: 42.673687 Longitude: -72.790317	
Crossing ID	xy4267368772790317	

Map ID	152	 
Road / Surface	Colrain Stage Rd / Paved	
Stream	Trib Taylor Brook	
Crossing Type	Single Culvert	
Jurisdiction	Local	
Overall Risk of Failure	**High**	
Structural Risk	✓	
Geomorphic Risk		
Hydraulic Risk		
Aquatic Passability	Significant Barrier	
Observation Date	9/22/2014	
GPS Coordinates	Latitude: 42.678229 Longitude: -72.777765	
Crossing ID	xy4267822972777765	

High Risk Stream Crossings
Heath, MA



Town Boundary
Sub Watershed Boundary
High Risk Crossing
Major Road
Local Road
Stream
Water Body

N W E S

NUMBER	STREAM NAME	ROAD	CROSSING TYPE	TOWN
141	Mill Brook	Rowe Road	Single Culvert	Heath
142	Mill Brook	Jacksonville Stage Road	Multiple Culvert	Heath
143	Trib Mill Brook	Judd Road	Single Culvert	Heath
144	West Branch Brook	Jacksonville Stage Road	Bridge	Heath
145	Burrington Brook	Brunelle Road Extension	Multiple Culvert	Heath
146	Sanders Brook	State Farm Road	Single Culvert	Heath
147	Trib Sanders Brook	State Farm Road	Single Culvert	Heath
148	Trib Sanders Brook	Sanders Brook Road	Single Culvert	Heath
149	Davenport Brook	Swamp Road	Single Culvert	Heath
150	Davenport Brook	Waterfall Road	Open Bottom Arch	Heath
151	Trib Davenport Brook	Taylor Brook Road	Single Culvert	Heath
152	Trib Taylor Brook	Colrain Stage Road	Single Culvert	Heath

Data obtained from the Stream Crossings Explorer (SCE) data visualization and decision support tool http://sce.ecosheds.org/ developed as part of MassDOT's project: "A Proposed Method for Assessing the Vulnerability of Road-Stream Crossings to Climate Change: Deerfield River Watershed Pilot." SCE can be used to prioritize stream crossings for replacement or repair based on the structure's impacts to aquatic connectivity and river functions as well as risk of failure due to flooding and associated disruption of emergency services. This tool was funded by MassDOT and the US Dept. of the Interior Hurricane Sandy Mitigation Fund. SCE was developed by UMass-Amherst, USGS, and the US Forest Service and is being piloted in the Deerfield River Watershed. This on-line tool and project report are still under development Map created by Ryan Clary, Senior GIS Specialist, Franklin Regional Council of Governmetns, June-September 2018

0 0.4 0.8 1.6 Miles

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Instructions for Using Stream Crossing Data Tools

This report utilized two online data tools to compile the information in the stream crossing tables and map. Each of these tools contains a wealth of additional data and information that may be of interest to Town staff and officials. The following section will provide basic instructions on how to use each tool, and will show examples of additional information available.

North Atlantic Aquatic Connectivity Collaborative (NAACC)

The NAACC is a participatory network of practitioners including the University of Massachusetts Amherst and The Nature Conservancy, who are united in their efforts to enhance aquatic connectivity. The NAACC has developed protocols, tools, and trainings to assess and identify road-stream crossings that are problematic from an aquatic connectivity perspective. NAACC's online database serves as a common repository for crossing assessment data.

To access the online database go to https://www.streamcontinuity.org/cdb2/naacc_search_crossing.cfm

Select Massachusetts under the "Location" tab. Then select your town.

Under the "Choose Data Sets" tab, select NAACC (after 6/1/2015)

Then select "Search"

A list of culverts will appear below the search box (you may need to scroll down to see the search results).

FIGURE 4

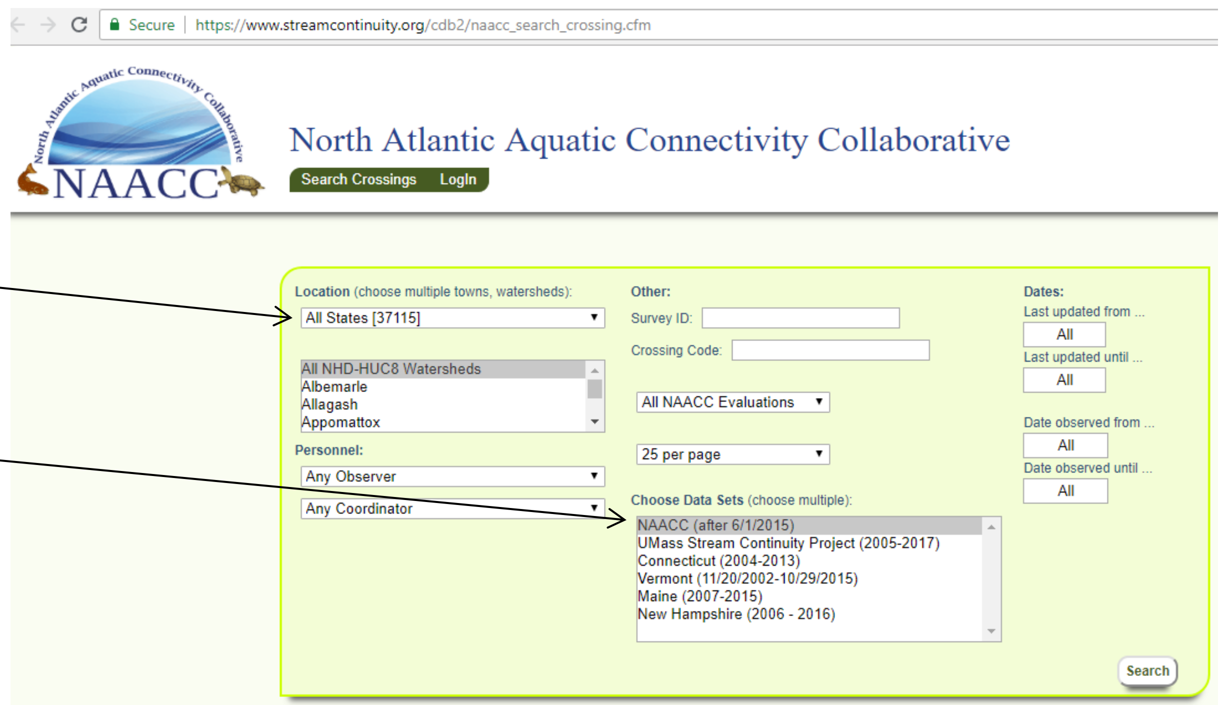


Figure 4: *The North Atlantic Aquatic Connectivity Collaborative online search page provides access to information on culverts that have been assessed for aquatic passage.*

Select the Crossing Code for a crossing to see the full record (see the following page for an example record).

Each record contains “Crossing Data” (Figure 5) which includes basic information on the location and type of crossing and the date and conditions under which it was evaluated. If photos are available, they will be shown at the top of the screen.

Each record also contains “Structure Data” (Figure 6. You may need to scroll down to see this set of data). This set of data provides information on the shape and size of the crossing as well as stream characteristics around and through the crossing.

FIGURE 5

Crossing Data:

Database Entry By: No data

Entry Date: 05-06-2016

Coordinator: Erin Rodgers

Last Updated: 05-06-2016

GPS to Crossing Distance (meters): 3.0

NHD-HUC8 Watershed: Deerfield

Crossing Code: xy4255478872826006

Local ID: No data

Date Observed: 04-27-2016

Lead Observer: Devin Fitzgerald

Town/County: Ashfield, MA

Stream/River: Trib Upper Branch Clesson Brook

Road: Tatro Road

Type: Paved

GPS: Lat: 42.55477, Long: -72.82597

Location Description: Near outlet of small pond on inside of the curve on Tatro Road

Crossing Type: Culvert

Number of Culverts/Bridge Cells: 1

Flow Condition: Typical low-flow

Crossing Condition: OK

Tidal Site: No

Alignment: Skewed (>45°)

Road Fill Height (feet) : 0.01

Bankfull Width (feet): 6

Bankfull Width Confidence: High

Constriction: Severe

Tailwater Scour Pool: Large

Crossing Comments: No data

Evaluation of this stream crossing is estimated as: **SEVERE BARRIER**

Figure 5: *The “Crossing Data” screen provides basic information on the type and location of the crossing.*

FIGURE 6

Structure Data:

Total Number of Culverts: 1

This is culvert number 1 for this crossing:

Outlet Openness Ratio: 0.028

Outlet Shape: Round Culvert

Outlet Grade : Free Fall

Outlet drop to water surface (feet): 1.3

Structure Length: L = 27.7 Feet

Structure Material: Metal

Outlet Armoring: None

Outlet dimensions (feet): A = 1.0; **B** = 1.3; **C**= 0.7; **D** = 0.10 ; **E**= No data

Outlet drop to stream bottom (feet): 1.6

Inlet Openness Ratio: 0.048

Inlet Type: Projecting

Inlet dimensions (feet): A = 1.3; **B** = 1.3; **C** = 0.8; **D** = 0.20

Inlet Shape: Round Culvert

Inlet Grade: At Stream Grade

Slope Percent: No data

Internal Structures: None

Structure Substrate Matches Stream: Comparable

Structure Substrate Coverage: 25%

Severity: None

Water velocity matches that of the stream? No-Faster

Height above dry passage: No data

Structure Comments: No data

Slope Confidence: No data

Internal Structures Comment: No data

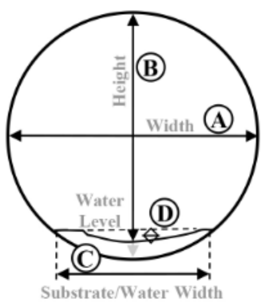
Structure Substrate Type: Sand

Physical Barriers: None

Water depth matches that of the stream? No-Shallower

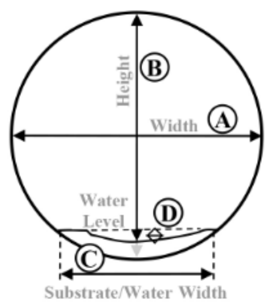
Dry passage through structure? No

Inlet Shape:



Round Culvert

Outlet Shape:



Round Culvert

Figure 6: *The "Structure Data" screen provides information on the size of the structure and stream characteristics around the crossing.*

SHEDS: Stream Crossing Explorer[4]

The Stream Crossings Explorer (SCE) tool (Figure 7) is an online data tool that helps locate road-stream crossings based on the interests of the user. SCE conveys information about the vulnerability of road-stream crossings to heavy precipitation events. The five factors considered when determining vulnerability are structural, geomorphic, and hydraulic condition,[5] the potential for disruption of emergency medical services, and the potential for improvement of aquatic organism passage. The tool was designed for state and municipal agencies, local decision-makers, regional planners, conservation organizations, and natural resource managers. The tool was developed by the Massachusetts Department of Transportation (MassDOT) and the University of Massachusetts, Amherst. The Deerfield River Watershed served as the pilot area for the tool. The project was funded by MassDOT and the Department of the Interior Hurricane Sandy Mitigation Fund, with additional support provided by the U.S. Geological Survey, the U.S. Forest Service, and the University of Massachusetts, Amherst.

To access the online data tool go to:
http://sce.ecosheds.org/

FIGURE 7

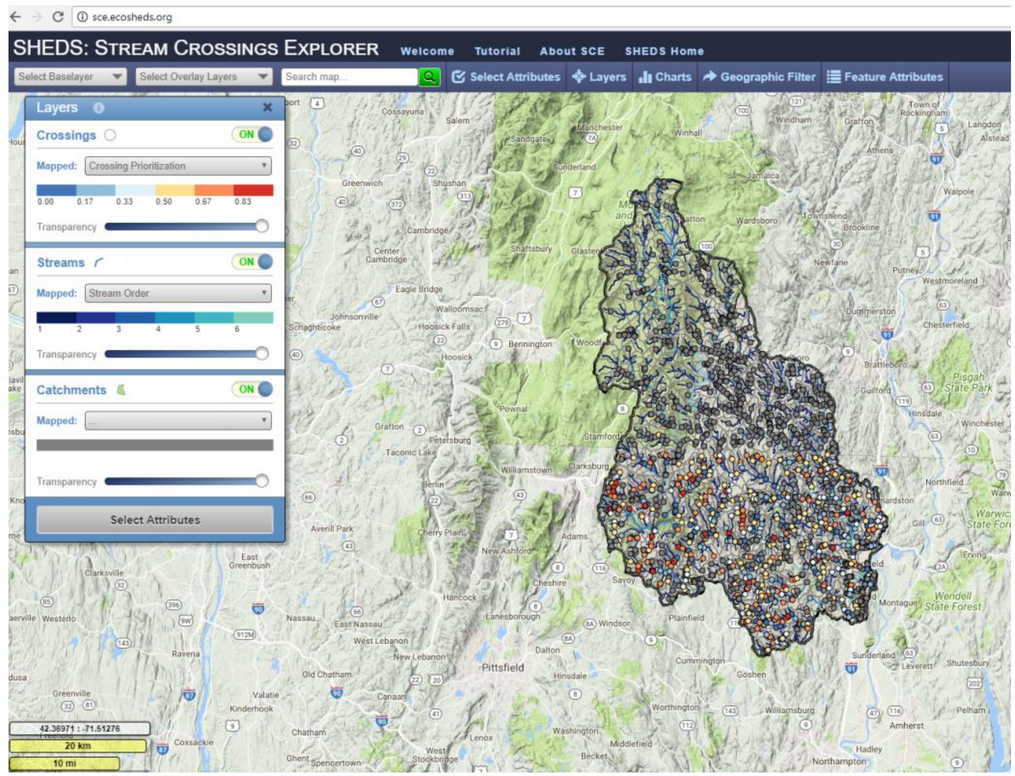


Figure 7: *The SHEDS Stream Crossing Explorer is an online data tool with information about the vulnerability of road-stream crossings to heavy precipitation events.*

[4] The SHEDS: Stream Crossing Explorer tutorial is courtesy of work completed by a UMass Amherst student through the UMass Center for Agriculture, Food and the Environment's 2018 Summer Policy Scholars Pilot Program.
[5] These terms are defined in the beginning of this report on page 4.

There are a series of key words, defined below, that make the tool useful at different scales.

1. A 'layer' is a collection of features – crossings, streams or catchments. This is found and can be manipulated at the top left of the screen (Figure 8).

FIGURE 8

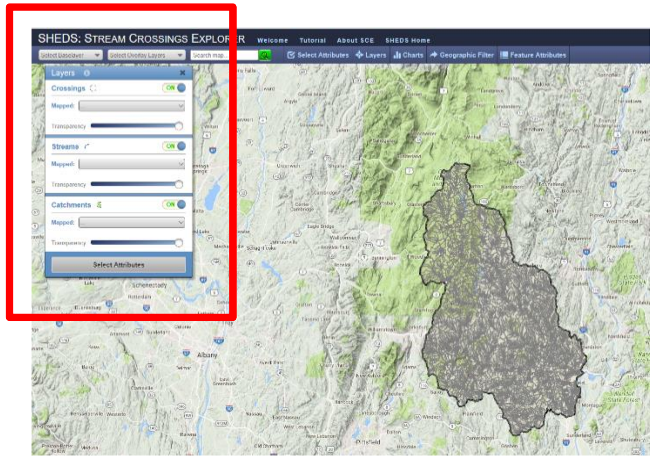


Figure 8: Layers are collections of features and can be found in the top left of the screen.

2. A 'feature' is a representation of a real world object. The colored dot in the first image represents a crossing. The blue line in the second image represents a stream. The green gradient in the third image represents a catchment.

FIGURE 9

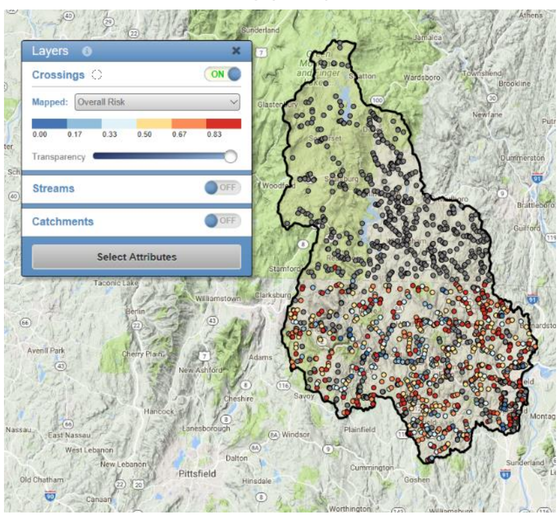


Figure 9: The dots represent crossings.

FIGURE 10

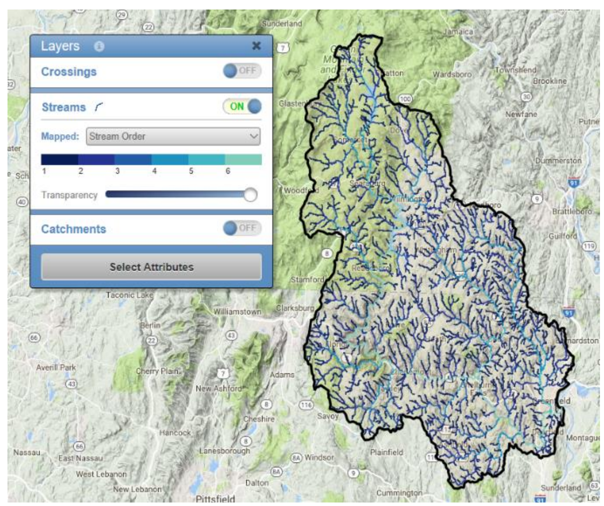


Figure 10: The blue lines represent streams.

FIGURE 11

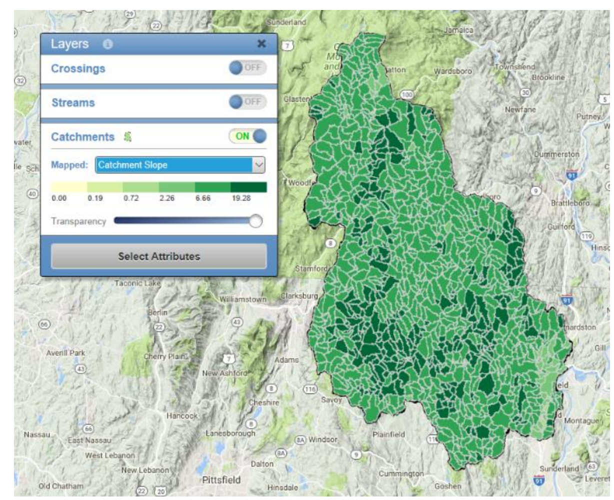


Figure 11: The green gradients are catchment areas.

3. An ‘attribute’ gives us information about a specific feature. This can be accessed by clicking on the drop down menu adjacent to the layer (displayed on Figure 12). The tool selects 5 default attributes to be viewed. By clicking on the ‘Select Attribute’ at the bottom of the ‘Layers’ window, you can view all the available attributes (displayed on Figure 13).

FIGURE 12

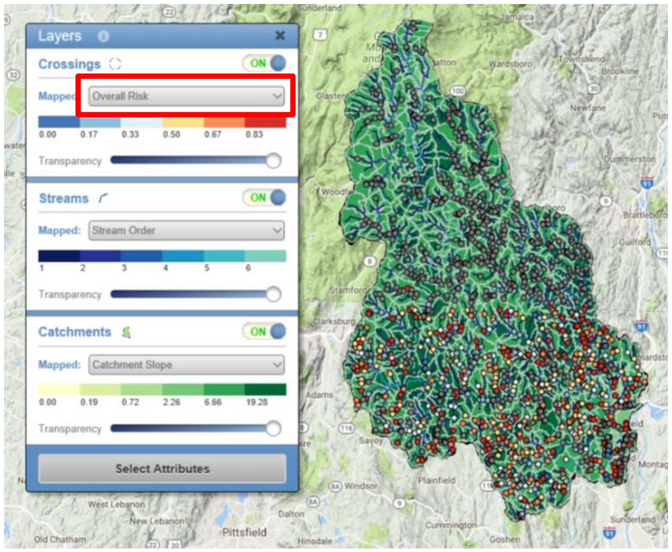


Figure 12: *Attributes can be accessed by clicking on the drop down menu adjacent to the layer.*

FIGURE 13

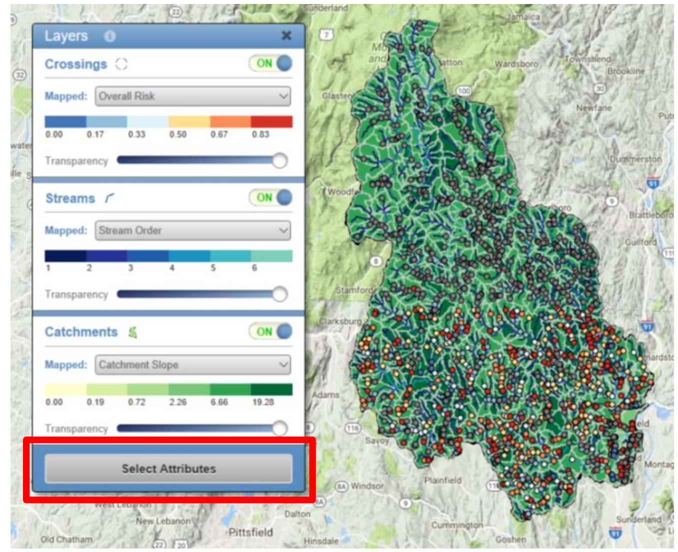


Figure 13: *To view all available attributes, click on “Select Attributes” at the bottom of the window.*

4. By clicking on the 'Select Attribute' tab, a window will open that allows you to view and select which attributes apply to your case or scenario. Selecting the appropriate attributes adds them to the feature's respective drop down menus. This window displays more options for analysis and is useful when conducting more in-depth research of a crossing. You can also choose to 'Continue with Default Selections' at the bottom of the window.

FIGURE 14

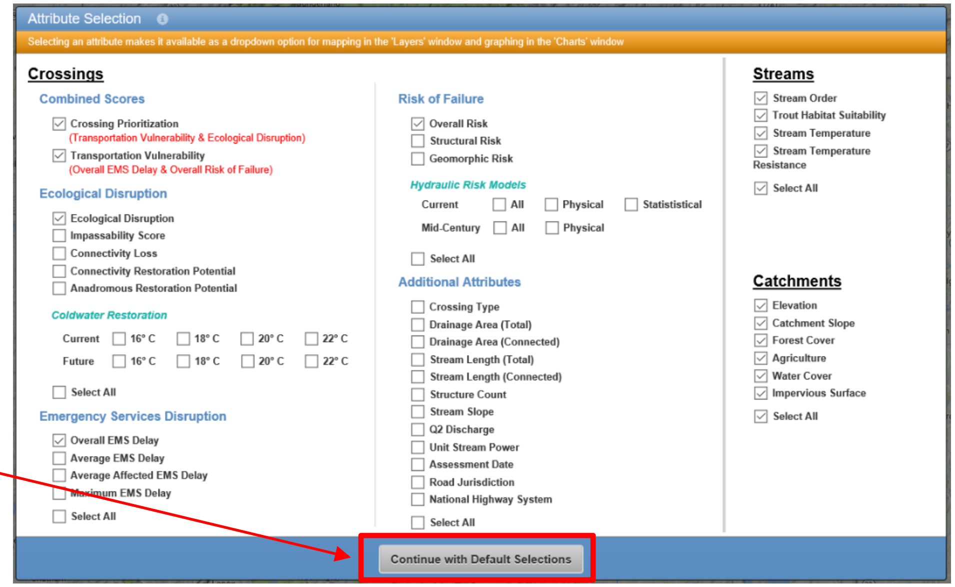


Figure 14: *You can view and select which attributes will apply to your scenario, or continue with the default selections.*

5. There are various other manipulations that can be done using this tool in order to acquire a more accurate result:

    a. You can click on an object (crossing, catchment or stream) within the map to view all attributes of that specific feature. This window displays all the information of a specified object, including attributes that have not been selected.

    b. You can switch features on and off by clicking on the slider adjacent to the feature title. By switching off a layer, you can view a clearer image of the map, while focusing on a feature that applies to your case.

    c. You can adjust the transparency of a feature by moving the slider back and forth. This allows certain features in this tool to stand out, while still retaining information from the others.

FIGURE 15

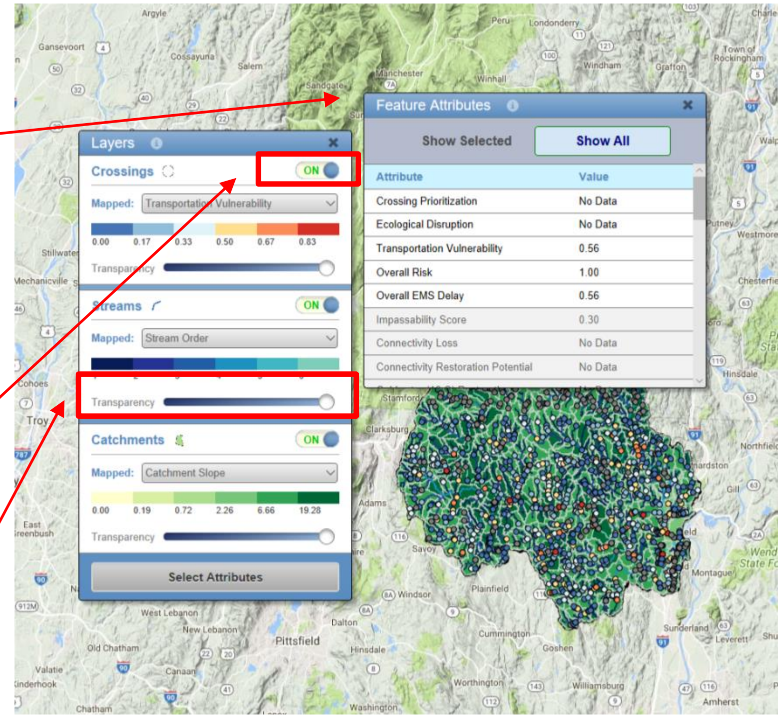


Figure 15: *There are various ways to access, view, and refine information using the tool.*

6. To restrict features on the map to a certain region click the ‘Geographic Filter’ tab at the top of the screen. You can then select the areas or regions of interest from the drop down menus available.

FIGURE 16

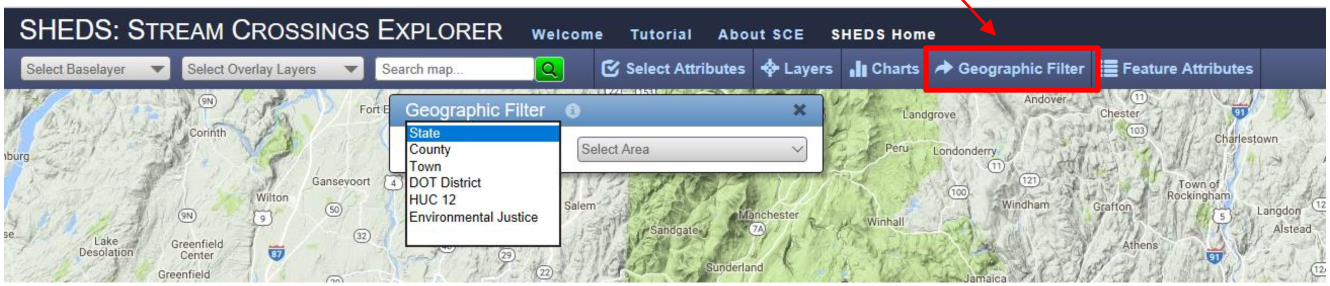


Figure 16: *The “Geographic Filter” allows you to choose a specific region or town to focus on.*

7. To display the data for any attribute to identify a trend, you can use the ‘Chart’ tool. This tab allows you to create a graph between different features to cross analyze, compare and prioritize which feature might need immediate remediation. You can do this by clicking on the ‘Charts’ tab at the top of the screen. This will open a window where you can select which ‘Spatial Join’ you want to use and then select which attribute you want to display in a graph.

FIGURE 17

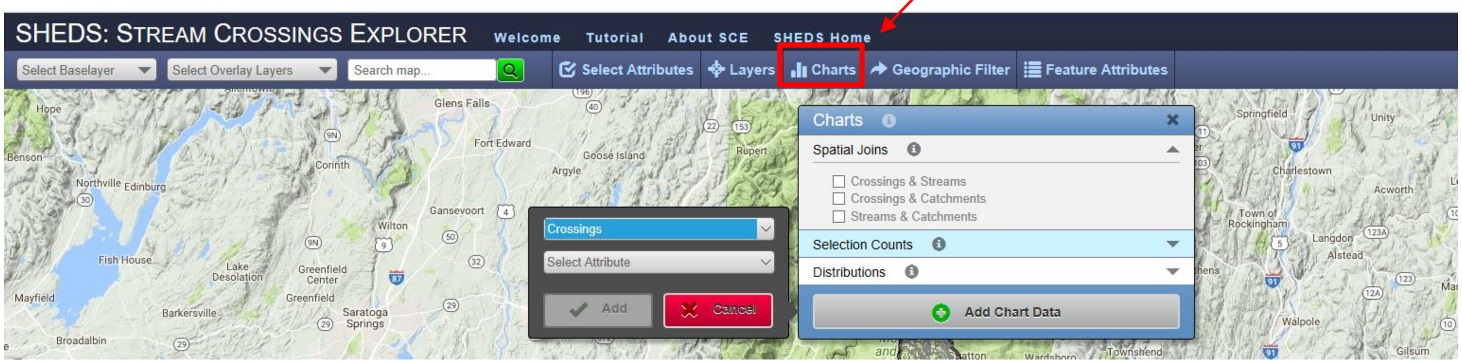


Figure 17: *The “Charts” tool allows you to create a graph of different features.*

Funding Opportunities for Upgrading Stream Crossings

Chapter 90 Funding (Massachusetts Department of Transportation)

The Chapter 90 program is a State funding program that entitles municipalities to reimbursement for capital improvement projects for road construction, preservation, and improvement that create or extend the life of capital facilities. The funds can be used for maintaining, repairing, improving, or constructing town and county ways and bridges that qualify under the State Aid Highway Guidelines. Items eligible for Chapter 90 funding include project design, roadways, sidewalks, right-of-way acquisition, shoulders, landscaping and tree planting, roadside drainage, street lighting, and traffic control devices. Each municipality in Massachusetts is granted an annual allocation of Chapter 90 reimbursement funding that it is eligible for, and the municipality can choose among any eligible infrastructure investments. https://www.mass.gov/chapter-90-program

Culvert Replacement Municipal Assistance Grant Program (Massachusetts Division of Ecological Restoration)

The Division of Ecological Restoration's Culvert Replacement Municipal Assistance Grant Program is for Massachusetts municipalities interested in replacing an undersized, perched, and/or degraded culvert located in an area of high ecological value. The purpose of this funding is to encourage municipalities to replace culverts with better designed crossings that meet improved structural and environmental design standards and flood resiliency criteria. Only projects that intend to meet the goals of the Massachusetts Stream Crossing Standards will be considered for funding. https://www.mass.gov/how-to/culvert-replacement-municipal-assistance-grant-program

Federal 604b Water Quality Management Planning Grant Program (Massachusetts Department of Environmental Protection)

This Federal funding program, administered by the Massachusetts Department of Environmental Protection, is authorized under the Federal Clean Water Act Section 604(b) for water quality assessment and management planning. Eligible entities include: regional planning agencies, councils of governments, conservation districts, counties, cities and towns, and other state public planning agencies and interstate agencies. No local match is required. https://www.mass.gov/service-details/grants-financial-assistance-watersheds-water-quality

Hazard Mitigation Grant Program (Massachusetts Emergency Management Agency)

The Hazard Mitigation Grant Program, administered by the Massachusetts Emergency Management Agency, provides federal funds to states, territories, tribal governments, and other communities after a disaster to reduce or eliminate future risk to lives and

property from natural hazards. State and local governments, tribal organizations, and certain private non-profits may be eligible to apply for funding to cover projects including stormwater upgrades, drainage and culvert improvements, property acquisition, slope stabilization, infrastructure protection, seismic and wind retrofits, structure elevations, etc. https://www.mass.gov/service-details/hazard-mitigation-grant-program-hmgp

MassWorks Infrastructure Program (Executive Office of Housing & Economic Development)

The MassWorks Infrastructure Program is a State funding program that funds a range of publicly owned infrastructure projects, including but not limited to streets, roads, curb-cuts, parking facilities, site preparation and improvements on publicly owned land, and pedestrian walkways, in order to prepare communities for long-term strength and sustainability, with particular emphasis on projects that support multi-family housing in walkable mixed-use districts, or that support economic development in weak or distressed areas. Each year, at least ten percent of funds will be set aside for projects in small, rural communities with a population of 7,000 or less to support economic or community development and improvements to enhance safety. https://www.mass.gov/service-details/massworks-2018-round-opens

Municipal Small Bridge Program (Massachusetts Department of Transportation)

This State funding program is a 5 year program to assist cities and towns with replacing or preserving bridges with spans between 10' and 20'. Each municipality may qualify for up to $500,000 per year. These small bridges are not eligible for federal aid under existing programs. This program provides for state reimbursement to municipalities of up to 100% of the total design and construction cost of eligible projects. MassDOT and each selected municipality will enter into an agreement to reimburse funds for approved projects. https://www.mass.gov/municipal-small-bridge-program

Municipal Vulnerability Preparedness (MVP) Grant Program (Executive Office of Energy and Environmental Affairs)

The MVP Grant Program provides State funding to support cities and towns across the state to begin the process of planning for climate change resiliency and implement priority projects. The state awards communities with funding to complete vulnerability assessments and develop action-oriented resiliency plans. Communities who complete the MVP program become certified as an MVP community, and are then eligible for MVP Action grant funding to advance priority actions that address climate change impacts resulting from extreme weather, sea level rise, inland and coastal flooding, severe heat, and other climate impacts. Projects that propose nature-based solutions or strategies that rely on green infrastructure or conservation and enhancement of natural systems to improve community resilience are given priority for funding. https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program

Pre-Disaster Mitigation (PDM) Grant Program (Massachusetts Emergency Management Agency)

The PDM Grant Program, administered by the Massachusetts Emergency Management Agency, provides Federal funds to states, territories, Indian tribal governments and communities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Federal funding for this nationally competitive grant program is generally an annual allocation (subject to Congressional appropriation). https://www.mass.gov/service-details/pdm-fma-grants

Section 319 Nonpoint Source Competitive Grant Program (Massachusetts Department of Environmental Protection)

This grant program is authorized under Section 319 of the Federal Clean Water Act for implementation projects that address the prevention, control, and abatement of nonpoint source (NPS) pollution. In general, eligible projects must: implement measures that address the prevention, control, and abatement of NPS pollution; target the major source(s) of nonpoint source pollution within a watershed/subwatershed; contain an appropriate method for evaluating the project results; and must address activities that are identified in the Massachusetts NPS Management Plan. Proposals may be submitted to MA DEP by any interested Massachusetts public or private organization. To be eligible to receive funding, a 40% non-federal match is required from the grantee. https://www.mass.gov/service-details/grants-financial-assistance-watersheds-water-quality

Small Town Housing Choice Capital Grant Program (Massachusetts Department of Housing and Community Development)

Towns with populations under 7,000 and that have a Community Compact and no moratorium for new housing qualify to apply for this State funding program. Any municipal capital improvement may be eligible, though projects related to housing or economic development will receive higher priority. https://www.mass.gov/how-to/small-town-housing-choice-capital-grant-program

Transportation Improvement Program (MassDOT)

The Transportation Improvement Program (TIP) is a prioritized, multi-year listing of transportation projects in a region that are to receive Federal funding for implementation. Projects are limited to certain roadways and are constrained by available funding for each fiscal year. Any transportation project in Franklin County that is to receive federal funding must be listed on the TIP.

Projects are chosen and prioritized by the Franklin County Transportation Planning Organization (TPO), which is made up of state, regional, and local officials. Towns are responsible for paying for design and any Right of Way work, but construction is funded 80% by Federal funds, and 20% by State funds. The typical timeframe for a project listed on the TIP is ten years, but the payoff for a town is that the construction is paid for 100%. https://frcog.org/program-services/transportation-planning/

USDA Community Facilities Direct Loan & Grant (United States Department of Agriculture Rural Development)

This Federal funding program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial or business undertakings. Rural areas include cities and towns with no more than 20,000 residents as of the last U.S. Census. Funds can be used to purchase, construct, and/or improve essential community facilities, purchase equipment and pay related project expenses. Communities with a population of 5,500 or less and/or with a median household income below 80% of the state nonmetropolitan median household income receive priority for funding. https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program/ma